



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

**NOTICE OF ALLOWANCE AND ISSUE FEE DUE**

022434 IM22/0927  
BEYER WEAVER & THOMAS LLP  
P.O. BOX 778  
BERKELEY CA 94704-0778

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/222,588	12/28/98	034	HASSANZADEH, P	1763 09/27/00
First Named Applicant	LI, 35 USC 154(b) term ext. = 0 Days.			

TITLE OF INVENTION PERFORATED PLASMA CONFINEMENT RING IN PLASMA REACTORS

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
0	P0424/LAM1P0	118-723.000	S90 UTILITY	NO	\$1210.00	12/27/00

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.**

**THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.**

**HOW TO RESPOND TO THIS NOTICE:**

- I. Review the SMALL ENTITY status shown above.  
If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:
  - A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
  - B. If the status is the same, pay the FEE DUE shown above.
- If the SMALL ENTITY is shown as NO:
  - A. Pay FEE DUE shown above, or
  - B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.
- II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.
- III. All communications regarding this application must give application number and batch number.  
Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

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**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/222,588	12/28/98	LI	L P0424/LAM1P0

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IM22/0927

EXAMINER

HASSANZADEH, P

ART UNIT

PAPER NUMBER

1763

DATE MAILED:

09/27/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Notice of Allowability

Application No.

09/222,588

Examiner

Parviz Hassanzadeh

Applicant(s)

LI ET AL.

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

1. ☒ This communication is responsive to 9/22/00.
2. ☒ The allowed claim(s) is/are 1-15, 17, 19, 21-25, and 27-38.
3. ☐ The drawings filed on \_\_\_\_\_ are acceptable.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the CERTIFIED copies of the priority documents have been
    1. ☐ received.
    2. ☐ received in Application No. (Series Code / Serial Number). \_\_\_\_\_.
    3. ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

5. ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

A SHORTENED STATUTORY PERIOD FOR REPLY to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office Action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be available under the provisions of 37 CFR 1.136(a).

6. ☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
7. ☒ Applicant MUST submit NEW FORMAL DRAWINGS
  - (a) ☐ because the originally filed drawings were declared by applicant to be informal.
  - (b) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review( PTO-948) attached
    - 1) ☒ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (c) ☒ including changes required by the proposed drawing correction filed 3/28/00, which has been approved by the examiner.
  - (d) ☐ including changes required by the attached Examiner's Amendment / Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

8. ☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any reply to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE / SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

## Attachment(s)

- |  |  |
|--|--|
| <input type="checkbox"/> Notice of References Cited (PTO-892)  | <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)               |
| <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)           | <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. <u>11</u> . |
| <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. <u>8</u> . | <input type="checkbox"/> Examiner's Amendment/Comment                                  |
| <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material   | <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance      |
|  | <input type="checkbox"/> Other   |

**GREGORY MILLS**  
PRIMARY EXAMINER

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 1-15, 17, 19, 21-25, and 27-38 are allowed.
2. The application having been allowed, formal drawings are required in response to this Office Action.
3. The following is an examiner's statement of reasons for allowance:  
A plasma processing reactor for processing a substrate comprising  
a chamber;  
a top electrode configured to be coupled to a first RF power source having a first RF frequency;  
a bottom electrode configured to be coupled to a second RF power source having a second RF frequency that is lower than the first RF ;  
an insulating shroud that lines an interior of the chamber, the insulating shroud being configured to be electrically floating during the processing;  
a perforated plasma confinement ring surrounding and disposed outside of an outer periphery of the bottom electrode, the perforated plasma confinement ring being disposed in its entirety at or below a top surface of the substrate, the perforated plasma confinement ring being formed from an electrically conductive material and electrically grounded during the processing so as to increase ion energy during the processing by removing electrons from the plasma.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parviz Hassanzadeh whose telephone number is (703)308-2050. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on (703)308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-5408 for regular communications and (703)305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

*ph*  
P. Hassanzadeh  
September 22, 2000

*[Signature]*  
GREGORY MILLS  
PRIMARY EXAMINER